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KIM, DAVID S

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2633

DATE MAILED: 11/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/936,418

Applicant(s)

MORRIS ET AL.

Examiner

David S. Kim

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 November 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>12 September 2001</u> . | 6) <input type="checkbox"/> Other: _____  |

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## DETAILED ACTION

### *Claim Objections*

1. **Claims 14-17 and 19-20** are objected to because of the following informalities:

In claims 14-17, "the Mach-Zehnder interferometer" lacks antecedent basis.

In claims 19-20, "multiplexer" is used where "demultiplexer" may be intended.

Appropriate correction is required.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

### **Ade et al.**

3. **Claims 1-2, 7-8, and 13-14** are rejected under 35 U.S.C. 102(b) as being anticipated by Ade et al. (U.S. Patent No. 5,347,601, hereinafter "Ade").

**Regarding claim 1**, Ade discloses:

An optical transceiver for transmitting and receiving optical signals of the same wavelength, the transceiver comprising

a light source (light 16 in Fig. 1),

a light receiver (photodetector 72) and

input-output means (port 46) for receiving light from and transmitting light to a bi-directional optical transmission path (fiber 48),

optical switching (coupler 34) means being provided to selectively provide optical communications between the light source and the input-output means and between the input-output means and the light receiver.

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**Regarding claim 2**, Ade discloses:

An optical transceiver as claimed in claim 1 in which the optical switching means comprises an integrated optical switch (Figs. 4 and 9).

**Regarding claim 7**, Ade discloses:

An optical transceiver as claimed in claim 1 in which the optical switching means can also be arranged to provide selected coupling ratios (col. 5, l. 31-49) between the input-output means and the light source and the light receiver.

**Regarding claim 8**, Ade discloses:

An optical transceiver as claimed in claim 1 in which the light source comprises a light emitter (laser in col. 4, l. 5).

**Regarding claim 13**, Ade discloses:

An optical transceiver as claimed in claim 1 in which the input-output means comprises a fibre connector (port 46) for receiving an optical fibre providing the bi-directional optical transmission path.

**Regarding claim 14**, Ade discloses:

An optical transceiver as claimed in claim 13 in which the fibre connector is optically connected to a single port of a Mach-Zehnder interferometer (M-Z modulator 10 in Fig. 1).

**McAdams**

4. **Claims 1-3, 7-8, 12-14, and 17** are rejected under 35 U.S.C. 102(b) as being anticipated by McAdams (U.S. Patent No. 5,515,195).

**Regarding claim 1**, McAdams discloses:

An optical transceiver for transmitting and receiving optical signals of the same wavelength, the transceiver comprising

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a light source (i.e. lasers 50 in Fig. 2, source 110 in Fig. 6A),  
a light receiver (i.e. photodiodes in Figs. 3A-4B) and  
input-output means (i.e. couplers in Figs. 3A-4B) for receiving light from and  
transmitting light to a bi-directional optical transmission path (i.e. 40a or 40b in Fig. 2,  
66a or 66b in Figs. 3A-3B, 74a or 74b in Figs. 4A-4B, 105a or 105b in Fig. 6A),  
optical switching (i.e. Figs. 3A-4B, col. 6, l. 31-47, col. 7, l. 5-65) means being  
provided to selectively provide optical communications between the light source and the  
input-output means and between the input-output means and the light receiver.

**Regarding claim 2,** McAdams discloses:

An optical transceiver as claimed in claim 1 in which the optical switching means  
comprises an integrated optical switch (Figs. 3A-4B, col. 10, l. 11).

**Regarding claim 3,** McAdams discloses:

An optical transceiver as claimed in claim 2 in which the optical switch comprises  
at least one phase modulator ("delay" in col. 7, l. 26-30 modulates the phase of the signal  
that passes through electrode 78 in Figs. 4A-4B).

**Regarding claim 7,** McAdams discloses:

An optical transceiver as claimed in claim 1 in which the optical switching means  
can also be arranged to provide selected coupling ratios (col. 7, l. 47-65) between the  
input-output means and the light source and the light receiver.

**Regarding claim 8,** McAdams discloses:

An optical transceiver as claimed in claim 1 in which the light source comprises a  
light emitter (i.e. lasers 50 in Fig. 2, source 110 in Fig. 6A).

**Regarding claim 12,** McAdams discloses:

An optical transceiver as claimed in claim 1 in which the light receiver comprises  
a photodiode (i.e. photodiodes in Figs. 3A-4B).

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**Regarding claim 13**, McAdams discloses:

An optical transceiver as claimed in claim 1 in which the input-output means comprises a fibre connector (i.e. couplers in Figs. 3A-4B) for receiving an optical fibre providing the bi-directional optical transmission path.

**Regarding claim 14**, McAdams discloses:

An optical transceiver as claimed in claim 13 in which the fibre connector is optically connected to a single port of a Mach-Zehnder interferometer (note Mach-Zehnder configuration in Figs. 4A-4B).

**Regarding claim 17**, McAdams discloses:

An optical transceiver as claimed in claim 13 in which two ports of the Mach-Zehnder interferometer (Figs. 4A-4B) are each connected to a fibre connector each for connecting, respectively, to first and second optical fibres (i.e. 40a and 40b in Fig. 2, 66a and 66b in Figs. 3A-3B, 74a and 74b in Figs. 4A-4B, 105a and 105b in Fig. 6A), each fibre providing the bi-directional optical transmission means.

**Imaoka et al.**

5. **Claims 1, 8, 13, and 19-20** are rejected under 35 U.S.C. 102(b) as being anticipated by Imaoka et al. (U.S. Patent No. 5,673,133, hereinafter "Imaoka").

**Regarding claim 1**, Imaoka discloses:

An optical transceiver (Figs. 1-2B, 4, 6, 7, and 8) for transmitting and receiving optical signals of the same wavelength, the transceiver comprising

a light source (i.e. transmitter 13 or 27 in Fig. 1),

a light receiver (i.e. receiver 17 or 24 in Fig. 1) and

input-output means (i.e. object 15 or 21 in Fig. 1, i.e. path between object 15 and optical switch 16, i.e. path between object 21 and optical switch 23) for receiving light

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from and transmitting light to a bi-directional optical transmission path (i.e. optical fiber 1 in Fig. 1),

optical switching means (i.e. optical switch 16 or 23 in Fig. 1) being provided to selectively provide optical communications between the light source and the input-output means and between the input-output means and the light receiver.

**Regarding claim 8,** Imaoka discloses:

An optical transceiver as claimed in claim 1 in which the light source comprises a light emitter (lasers in col. 8, l. 1-2).

**Regarding claim 13,** Imaoka discloses:

An optical transceiver as claimed in claim 1 in which the input-output means (i.e. object 15 or 21 in Fig. 1) comprises a fibre connector (note how object 15 or 21 connects the optical fiber 1 to optical switch 16 or 23) for receiving an optical fibre providing the bi-directional optical transmission path.

**Regarding claim 19,** Imaoka discloses:

A transceiver unit (i.e. section 20 in Fig. 1) for receiving signals of more than one wavelength comprising a wavelength division multiplexer (i.e. object 21) for separating the signals of different wavelengths and an optical transceiver as claimed in claim 1 (see treatment of claim 1 above) connected to received signals of a first wavelength (i.e. 1.55  $\mu\text{m}$ ) from the wavelength division multiplexer.

**Regarding claim 20,** Imaoka discloses:

A transceiver unit as claimed in claim 19 comprising a further receiver (i.e. optical receiver 22 in Fig. 1) for receiving signals of a second wavelength (i.e. 1.31  $\mu\text{m}$ ) from the wavelength division multiplexer.

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***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

**Ade et al. as primary reference**

8. **Claims 3-6 and 13-16** are rejected under 35 U.S.C. 103(a) as being unpatentable over Ade as applied to claims 1-2 above, and further in view of McAdams.

Note that Ade teaches a coupler embodiment (Ade, col. 16, l. 41-52) that is similar to an embodiment in McAdams (McAdams, Figs. 3A-3B). Additionally, McAdams further teaches a Mach-Zehnder embodiment that has the same basic functionality (McAdams, Figs. 4A-4B) as the coupler embodiment. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to employ a Mach-Zehnder embodiment, as taught in McAdams, in the optical transceiver of Ade.



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One of ordinary skill in the art would have been motivated to do this since Ade teaches that other suitable embodiments may be used (Ade, col. 16, l. 41-59).

Together, Ade in view of McAdams teaches the following:

**Regarding claim 3**, Ade in view of McAdams discloses:

An optical transceiver as claimed in claim 2 in which the optical switch comprises at least one phase modulator (McAdams, “delay” in col. 7, l. 26-30 modulates the phase of the signal that passes through electrode 78 in Figs. 4A-4B; Ade, col. 4, l. 14-37).

**Regarding claim 4**, Ade in view of McAdams discloses:

An optical transceiver as claimed in claim 3 in which the phase modulator comprises a p-i-n diode (col. 10, l. 55-68).

**Regarding claim 5**, Ade in view of McAdams discloses:

An optical transceiver as claimed in claim 4 in which the optical switch comprises a Mach-Zehnder interferometer (Mach-Zehnder embodiment, Ade in view of McAdams).

**Regarding claim 6**, Ade in view of McAdams discloses:

An optical transceiver as claimed in claim 5 in which the Mach-Zehnder interferometer is a four-port interferometer, comprising two four-port couplers (McAdams, Figs. 4A-4B).

**Regarding claim 13**, Ade in view of McAdams discloses:

An optical transceiver as claimed in claim 1 in which the input-output means comprises a fibre connector (Ade, port 46) for receiving an optical fibre providing the bi-directional optical transmission path.

**Regarding claim 14**, Ade in view of McAdams discloses:

An optical transceiver as claimed in claim 13 in which the fibre connector is optically connected to a single port of a Mach-Zehnder interferometer (a port of the Mach-Zehnder embodiment, Ade in view of McAdams).

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**Regarding claim 15**, Ade in view of McAdams discloses:

An optical transceiver as claimed in claim 14 in which a further light receiver is connected to another port of the Mach-Zehnder interferometer (McAdams, Figs. 4A-4B, note the two photodiodes)

Ade in view of McAdams does not expressly disclose:

said further light receiver is connected to another port of the Mach-Zehnder interferometer *to monitor the output of the transceiver*.

However, using additional light receivers to monitor the output of transceivers is known in the art. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to incorporate such a monitoring function in the optical transceiver of Ade in view of McAdams. One of ordinary skill in the art would have been motivated to do this to provide any or all of the following common features: diagnostic and performance information about the transceiver, fault detection, signal-to-noise ratio, etc. Additionally, said another port already carries a test light 50, presumably for monitoring (Ade, col. 5, l. 45), anyway.

**Regarding claim 16**, Ade in view of McAdams discloses:

An optical transceiver as claimed in claim 13 in which the fibre connector (Ade, port 46 in Fig. 1) is optically connected to two ports of the Mach-Zehnder interferometer (McAdams, ports of Figs. 4A-4B).

Ade in view of McAdams does not expressly disclose:

An optical transceiver as claimed in claim 13 in which the fibre connector is optically connected to two ports of the Mach-Zehnder interferometer *via a Y junction*.

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However, it is known that ports of Mach-Zehnder interferometers connect to other components via an X or a Y junction. McAdams shows an X junction (Figs. 4A-4B). Ade shows a Y junction (modulator 10 in Fig. 1). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to employ a Y junction in the optical transceiver of Ade in view of McAdams. One of ordinary skill in the art would have been motivated to do this since Ade teaches that other suitable embodiments may be used (Ade, col. 16, l. 41-59), and a Y junction is the standard alternate embodiment to the X junction of McAdams.

9. **Claims 9 and 12** are rejected under 35 U.S.C. 103(a) as being unpatentable over Ade.

**Regarding claim 9**, Ade does not expressly disclose:

An optical transceiver as claimed in claim 8 in which the light emitter is a laser diode.

However, laser diodes are extremely well known in the art. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to employ a laser diode as the light emitter of Ade. One of ordinary skill in the art would have been motivated to do this since laser diodes are standard and conventional light emitters for optical transceivers.

**Regarding claim 12**, Ade does not expressly disclose:

An optical transceiver as claimed in claim 1 in which the light receiver comprises a photodiode.

However, photodiodes are extremely well known in the art. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to employ a photodiode as the light receiver of Ade. One of ordinary skill in the art would

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have been motivated to do this since photodiodes are standard and conventional light receivers for optical transceivers.

10. **Claims 10-11** are rejected under 35 U.S.C. 103(a) as being unpatentable over Ade as applied to claim 1 above, and further in view of Ishikawa et al. (U.S. Patent No. 5,361,157, hereinafter "Ishikawa").

**Regarding claim 10**, Ade does not expressly disclose:

An optical transceiver as claimed in claim 1 in which the light source comprises a *reflector arranged to reflect light received from a remote light source via the input-output means.*

However, it is a well-known practice for optical transceivers to employ such reflectors as light sources. Ishikawa teaches a variety of optical transceivers with such reflectors (Figs. 1D, 2B, 2C, 4A-8, 11, and 14-16). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to arrange the light source of Ade to comprise a reflector arranged to reflect light received from a remote light source via the input-output means. One of ordinary skill in the art would have been motivated to do this to obviate the need for a light source (Ishikawa, col. 1, l. 35-37, 66-67). Light sources like the laser of Ade (col. 4, l. 5) generally cost more than reflectors, so removing the need for such light sources would reduce the cost of the optical transceivers.

**Regarding claim 11**, Ade in view of Ishikawa discloses:

An optical transceiver as claimed in claim 10 in which the optical switching means is also arranged to modulate light reflected from the reflector (Ishikawa, i.e. col. 3, l. 24-25, col. 12, l. 28-32, 44-59, col. 16, l. 4-24).

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11. **Claims 17-18** are rejected under 35 U.S.C. 103(a) as being unpatentable over Ade in view of McAdams as applied to claim 13 above, and further in view of Ramaswami et al. (*Optical Networks: A Practical Perspective*, hereinafter "Ishikawa").

**Regarding claim 17**, Ade in view of McAdams does not expressly disclose:

An optical transceiver as claimed in claim 13 in which *two* ports of the Mach-Zehnder interferometer are each connected to a fibre connector each for connecting, respectively, to first and *second* optical fibres, each fibre providing the bi-directional optical transmission means.

Note that one port is not expressly connected to an optical fiber (Ade, waveguide 52 in Fig. 1). Rather, this port is available for a variety of alternative uses (Ade, col. 5, l. 42-54). One advantageous use for such a structure is fault management. That is, Ramaswami teaches a similar structure for transmitting and receiving (Ramaswami, note the two ports on the switches in Fig. 10.2(b)). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to utilize both output ports of the Mach-Zehnder interferometer by connecting each port to a fibre connector, each connector for connecting, respectively, to first and second optical fibres, as seen in Ramaswami. One of ordinary skill in the art would have been motivated to do this since the optical transceiver of Ade in view of McAdams is applied in optical communication transmissions (Ade, col. 2, l. 49-59), and the fault management teachings of Ramaswami add the benefit of resilience against failures in optical communication transmissions (Ramaswami, p. 430), especially for the case that a fault occurs on the first fiber of Ade in view of McAdams (Ade, optical fiber 48 in Fig. 1).

**Regarding claim 18**, Ade in view of McAdams and Ramaswami does not expressly disclose:

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An optical transceiver as claimed in claim 17 when connected to the first and second optical fibres, the first optical fibre being coupled to a *ring network so as to transmit signals to the network in a clockwise direction around the network and receive signals therefrom traveling in a counterclockwise direction around the network* and the second optical fibre being coupled to the *ring network so as to transmit signals thereto and receive signals therefrom in the opposite directions to the first optical fibre.*

However, Ramaswami further expands the aforementioned fault management teachings to apply to such ring networks (Ramaswami, p. 434-441, i.e. note Fig. 10.7). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to apply the optical transceiver of Ade in view of McAdams and Ramaswami to ring networks. One of ordinary skill in the art would have been motivated to do this since a ring is the simplest topology that allows a communication network to be resilient to failures (Ramaswami, p. 434, 2<sup>nd</sup> full paragraph).

#### **Ainslie et al. as primary reference**

12. **Claims 19-22** are rejected under 35 U.S.C. 103(a) as being unpatentable over Ainslie et al. (U.S. Patent No. 5,594,578, hereinafter "Ainslie") and further in view of Ade, as applied to claim 1 above.

**Regarding claim 19**, Ainslie discloses:

A transceiver unit for receiving signals of more than one wavelength comprising a wavelength division multiplexer (i.e. DMX in Fig. 2, demultiplexer 22 in Fig. 3A) for separating the signals of different wavelengths and an optical transceiver (i.e. transmitter 13 and receiver 14 in Fig. 2, Tx and Rx for 1300 nm in customer's equipment 20 in Fig. 3) connected to received signals of a first wavelength (i.e. telephony frequency in Fig. 2, 1300 nm in Fig. 3) from the wavelength division multiplexer.

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Ainslie does not expressly disclose:

said optical transceiver as claimed in claim 1.

Ade discloses an optical transceiver as claimed in claim 1 (see treatment of claim 1 above under Ade). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to incorporate the optical transceiver teachings of Ade in the transceiver unit of Ainslie. One of ordinary skill in the art would have been motivated to do this since the optical transceiver teachings of Ade are applicable to bi-directional communications, data, voice, and telephone signals (Ade, col. 2, l. 36-59), which are all disclosed by Ainslie (Fig. 3).

**Regarding claim 20**, Ainslie in view of Ade discloses:

A transceiver unit as claimed in claim 19 comprising a further receiver (i.e. broadband 15 in Fig. 2, Rx for 1550 nm in Fig. 3) for receiving signals of a second wavelength from the wavelength division multiplexer.

**Regarding claim 21**, Ainslie in view of Ade discloses:

A transceiver system comprising a central unit (exchange equipment 30 in Fig. 3) connected to plurality of transceiver units (col. 5, l. 49-52) as claimed in claim 19, the central unit comprising a digital transceiver (Tx and Rx for 1300 nm in Fig. 3) for communicating with the optical transceiver of each the transceiver units.

**Regarding claim 22**, Ainslie in view of Ade discloses:

A transceiver system as claimed in claim 21 connected to a plurality of transceiver units, the central unit comprising a digital transceiver (Tx and Rx for 1300 nm in Fig. 3) for communicating with the optical transceiver of each of the transceiver units and a further transmitter (Tx for 1550 nm in Fig. 3) for transmitting signals to the further receivers of each of the transceiver units.

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***Conclusion***

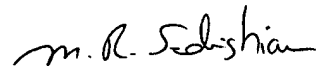
13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Takahashi et al. is cited to show a related optical transceiver with optical switching means to selectively provide optical communication between a light source and an input-output means and between the input-output means and a light receiver.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David S. Kim whose telephone number is 571-272-3033. The examiner can normally be reached on Mon.-Fri. 9 AM to 5 PM (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 571-272-3022. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DSK

  
**M. R. SEDIGHIAN**  
**PRIMARY EXAMINER**